

IN THE CLAIMS

This is a complete and current listing of the claims, marked with status identifiers in parentheses. The following listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A plasma-spraying device for spraying a powdered material, comprising electrodes—(1), which form a plasma channel—(2) having an inlet end—(3) and an outlet end—(4), and a means—(5) for supplying said powdered material to said plasma channel—(2), wherein said powder supply means—(5) is arranged between a first section—(6) of said electrodes—(1) located upstream of the means—(5) and a second section—(7) of said electrodes—(1) located downstream of the means—(5), as seen in the direction of plasma flow of the plasma channel—(2), and wherein ~~characterised in that~~ the diameter of the plasma channel—(2) in at least one section—(8) is greater than the diameter of the plasma channel—(2) in each section—(6, 7) located upstream of said section—(8).

2. (Currently Amended) A plasma-spraying device for spraying a powdered material, comprising electrodes—(1), which

form a plasma channel—(2) having an inlet end—(3) and an outlet end—(4), and a means—(5) for supplying said powdered material to said plasma channel—(2), wherein said powder supply means—(5) is arranged between a first section—(6) of said electrodes—(1) located upstream of the means—(5) and a second section—(7) of said electrodes—(1) located downstream of the means—(5), as seen in the direction of plasma flow of the plasma channel—(2), and wherein characterised ~~in that~~ at least in one section—(6, 7, 8), the length of the furthest upstream electrode equals the diameter of the plasma channel—(2) in this electrode.

3. (Currently Amended) A plasma-spraying device as claimed in claim 1 ~~or 2, in which~~ wherein at least one of the following parameters is different between said first and second sections—(6, 7): the length of the section, the number of electrodes—(1) in the section—(6, 7) and the geometry of the plasma channel—(2) in the section—(6, 7).

4. (Currently Amended) A plasma-spraying device as claimed in ~~any one of the preceding claims~~ claim 1, in which wherein an additional powder supply means—(9) is arranged between a third section—(8) of electrodes—(1) and one of said first and second sections—(6, 7).

5. (Currently Amended) A plasma-spraying device as claimed in ~~any one of the preceding claims~~claim 1, in ~~which~~wherein a plurality of powder supply means ~~(5, 9)~~ are provided, each of said powder supply means ~~(5, 9)~~ being arranged between a section of said electrodes located upstream of the means ~~(6, 7)~~ and a section of said electrodes located downstream ~~(7, 8)~~ of the means ~~(5, 9)~~.

6. (Currently Amended) A plasma-spraying device as claimed in ~~any one of the preceding claims~~claim 1, in ~~which~~wherein the number of electrodes ~~(1)~~ in at least one section ~~(6, 7, 8)~~ is at least two.

7. (Currently Amended) A plasma-spraying device as claimed in claim 6, ~~in which~~wherein the number of electrodes ~~(1)~~ in the section ~~(6)~~ closest to said inlet end ~~(3)~~ of the plasma channel ~~(2)~~ is at least two.

8. (Currently Amended) A plasma-spraying device as claimed in ~~any one of the preceding claims~~claim 1, in ~~which~~wherein the powder supply means ~~(5, 9)~~ forms a space ~~(10)~~ for supplying powder at an angle to a centre axis of the plasma channel ~~(2)~~.

9. (Currently Amended) A plasma-spraying device as claimed in claim 8, ~~in which~~wherein said space~~(10)~~ is formed by a projection~~(11)~~ on the electrode~~(1)~~ closest upstream of the means~~(5, 9)~~, which is arranged at a distance from a recess~~(12)~~ in the electrode~~(1)~~ closest downstream of the means~~(5, 9)~~.

10. (Currently Amended) A plasma-spraying device as claimed in claim 9, ~~in which~~wherein said projection~~(11)~~ is conical and makes an angle (α) with the centre axis of the plasma channel~~(2)~~.

11. (Currently Amended) A plasma-spraying device as claimed in claim 10, ~~in which~~wherein said angle (α) is 15-25°.

12. (Currently Amended) A plasma-spraying device as claimed in ~~any one of claims 9-11~~claim 9, ~~in which~~wherein said recess~~(12)~~ is conical and makes an angle (β) with the centre axis of the plasma channel~~(2)~~.

13. (Currently Amended) A plasma-spraying device as claimed in claim 12, ~~in which~~wherein said angle (β) is 17-30°.

14. (Currently Amended) A plasma-spraying device as claimed in ~~claims 10 and 12~~ claim 12, ~~in which~~ wherein the difference between said angle of the recess ~~(12)~~ and said angle of the projection ~~(11)~~ ($\beta - \alpha$) is 1.5° to 5° .

15. (Currently Amended) A plasma-spraying device as claimed in ~~any one of the preceding claims~~ claim 1, ~~in which~~ wherein the powder supply means ~~(5, 9)~~ comprises openings ~~(13)~~ that are oriented at an angle to the centre axis of the plasma channel ~~(2)~~ to obtain a tangential powder supply.

16. (Currently Amended) A plasma-spraying device as claimed in ~~any one of the preceding claims~~ claim 1, ~~in which~~ wherein the diameter of the plasma channel ~~(2)~~ in one section ~~(7)~~ is greater than the diameter of the plasma channel ~~(2)~~ in the section located upstream ~~(6)~~ of said section ~~(7)~~.

17. (Currently Amended) A plasma-spraying device as claimed in ~~any of the claims 2 to 16~~ claim 2, ~~in which~~ wherein the diameter of the plasma channel ~~(2)~~ in at least one section ~~(8)~~ is greater than the diameter of the plasma channel ~~(2)~~ in each section ~~(6, 7)~~ located upstream of said section ~~(8)~~.

18. (Currently Amended) A plasma-spraying device as claimed in ~~any one of the preceding claims~~claim 1, in ~~which~~wherein the length of the electrodes ~~(1)~~ is increased by their distance from the inlet end ~~(3)~~ of the plasma channel ~~(2)~~.

19. (Currently Amended) A plasma-spraying device as claimed in ~~any of the claims 1, 3 to 18~~claim 1, in ~~which~~wherein, at least in one section ~~(6, 7, 8)~~, the length of the furthest upstream electrode ~~(1)~~ equals the diameter of the plasma channel ~~(2)~~ in said furthest upstream electrode ~~(1)~~ in said section ~~(6, 7, 8)~~.

20. (Currently Amended) A plasma-spraying device as claimed in claim 2 ~~or 19~~, in ~~which~~wherein in one section ~~(6, 7, 8)~~, the length of the electrodes ~~(1)~~ in the section ~~(6, 7, 8)~~, which are located downstream of said furthest upstream electrode ~~(1)~~, is calculated as

$$L_n = n \times d_{\text{channel}}$$

where L_n is the length of electrode n , n is the ordinal number of the electrode in a section and d_{channel} is the diameter of the plasma channel in said electrode n .

21. (Currently Amended) A plasma-spraying device as claimed in ~~any one of claims 1-19~~claim 1, ~~in which,~~wherein at least in one section ~~(6, 7, 8)~~, the diameter of the plasma channel ~~(2)~~ varies in said section ~~(6, 7, 8)~~.

22. (Currently Amended) A plasma-spraying device as claimed in ~~any one of the preceding claims~~claim 1, which further comprises a cathode ~~(14)~~ and an anode ~~(15)~~ arranged at a distance from the cathode ~~(14)~~ and coaxial therewith, between which an electric arc is generated, during use of said device, into which gas is introduced to form a plasma, said electrodes ~~(1)~~ being arranged between said cathode ~~(14)~~ and said anode ~~(15)~~ forming said plasma channel ~~(2)~~.

23. (Currently Amended) A plasma-spraying device as claimed in ~~any one of the preceding claims~~claim 1, ~~in which~~wherein said electrodes ~~(1)~~ are annular.

24. (Currently Amended) A plasma-spraying device as claimed in ~~any one of the preceding claims~~claim 1, ~~in which~~wherein said electrodes ~~(1)~~ are coaxially arranged.

25. (Currently Amended) A method of plasma-spraying a powdered material by using a plasma-spraying device comprising

electrodes—(1), which form a plasma channel—(2) having an inlet end—(3) and an outlet end—(4), ~~characterised in that~~ comprising:

supplying the powdered material—~~is supplied~~ to the plasma-spraying device in at least one supply point located between two sections—(6, 7) of said electrodes—(1), which sections—(6, 7) are located respectively upstream and downstream of the supply point, ~~and~~ wherein the diameter of the plasma channel—(2) is adapted in at least one section—(8) to be greater than the diameter of the plasma channel—(2) in each section—(6, 7) located upstream of said section—(8).

26. (Currently Amended) A method of plasma-spraying a powdered material by using a plasma-spraying device comprising electrodes—(1), which form a plasma channel—(2) having an inlet end—(3) and an outlet end—(4), ~~characterised in that~~ comprising:

supplying the powdered material—~~is supplied~~ to the plasma-spraying device in at least one supply point located between two sections—(6, 7) of said electrodes—(1), which sections—(6, 7) are located respectively upstream and downstream of the supply point, ~~and~~ wherein at least in one section—(6, 7, 8), the length of the furthest upstream

electrode is adapted to equals the diameter of the plasma channel~~-(2)~~ in this electrode~~-(1)~~.

27. (Currently Amended) A method of plasma-spraying a powdered material as claimed in claim 25~~—or—26~~, ~~in which~~wherein the section~~-(7)~~ located downstream of the supply point is used to control the heating of the powdered material and other properties of the powder.

28. (Currently Amended) A method of plasma-spraying a powdered material as claimed in ~~any one of claims 25-27~~claim 25, ~~in which~~wherein at least one of the following parameters is different between said sections~~-(6, 7)~~ located respectively upstream and downstream: the length of the section~~-(6, 7)~~, the number of electrodes~~-(1)~~ in the section and the geometry of the plasma channel~~-(2)~~ in the section~~-(6, 7)~~.

29. (Currently Amended) A method as claimed in ~~any one of claims 25-28~~claim 25, ~~in which~~wherein a powdered material is supplied in at least two supply points located between the two sections ~~-(6, 7; 7, 8)~~ of said electrodes~~-(1)~~, which sections ~~-(6, 7; 7, 8)~~ are located respectively upstream and downstream of the respective supply points.

30. (Currently Amended) A method of using~~Use of~~ a device
as claimed in ~~any one of claims 1-24~~claim 1, comprising:
using the device for incinerating a powdered material.

31. (Currently Amended) A method of using~~Use of~~ a method
as claimed in ~~any one of claims 25-29~~claim 25, comprising:
using the method for incinerating a powdered material.

32. (Currently Amended) The method~~Use~~ as claimed in claim
~~31, of a method as claimed in any one of claims 25-29 for~~
~~incinerating a powdered material, in which~~ wherein additional
powdered material is supplied for neutralising or transforming
the powdered material intended to be incinerated.